4.0 SUMMARY

Potential jurisdictional wetlands and waters of the U.S. have been identified within the proposed corridor. ERG biologists conducted a preliminary investigation with on-site inspections along 4.7 miles of Canal No. 1 and a 125-foot wide corridor on each side of the existing canal on October 13-16, 2008. An ERG biologist met with Mr. John McFadden of the USACE, Mobile District on March 23, 2009 to verify our findings. Mr. McFadden recommended a couple of changes to the original delineation. ERG biologists revisited the proposed project area on April 22, 2009 to evaluate the USACE recommendations. Changes were made and have been incorporated in this report.

A total of 2.72 acres of jurisdictional wetlands, 2.89 acres of ponds, and 5.26 miles of waters of the U.S. were identified within the project area. Any changes or additions to the study corridors would need to be reevaluated as necessary.

The USACE has the authority to make the final decision regarding the jurisdictional status of wetlands and waters of the U.S. NSI should review this report. Once approved internally, NSI should submit this report to the USACE for their concurrence and to determine the appropriate permit requirements prior to the disturbance of any jurisdictional areas.

5.0 REFERENCES CITED

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APPENDIX A
Photographs of the Project Area

Photo 1. Canal No. 1 at Commission Road crossing.

Photo 2. Ephemeral ditch (Waters 2).

Photo 3. Pond (Waters 3) on Canal No. 1. View of overflow.

Photo 4. Pond created by dam on Canal No. 1 (Waters 3).

Photo 5. Pond on Canal No. 1 (Waters 4) near boundary of Naval Reserve Base.

Photo 6. Sample Plot U1.

A-2

Photo 7. Palustrine Emergent/Palustrine Scrub-Shrub Wetland (Sample Plot A).

Photo 8. Palustrine Emergent Wetland (Sample Plot B).

Photo 9. Palustrine Emergent Wetland (Sample Plot C).

A-3

Photo 10. Palustrine Emergent Wetland (Sample Plot D).

Photo 11. Palustrine Emergent Wetland (Sample Plot E).

Photo 12. Ephemeral ditch (Waters 7).

A-4

Photo 13. Intermittent ditch (Waters 15).

Photo 14. Beaver dam in Canal No. 1.

Photo 15. Sample Plot U2.

A-5

APPENDIX B
Plant Species Observed

Species	Common Name	Growth Habit	Indicator Status
Andropogon glomeratus	bushy bluestem	H	FACW+
Baccharis halimifolia	eastern baccharis	H	FAC
Betula nigra	river birch	T/S	FACW
Callicarpa americana	American beautyberry	S	FACU-
Campsis radicans	trumpet creeper	V	FAC
Carya illinoinensis	pecan	T/S	FAC+
Carya texana	black hickory	T/S	UPL
Cyperus spp	flatsedge	H	OBL
Diospyros virginiana	persimmon	T/S	FAC
Eupatorium capillifolium	dogfennel	H	FACU
Fagus grandifolia	American beech	T/S	FACU
Gleditsia triacanthos	honeylocust	T/S	FACW
Impatiens capensis	jewel weed	H	FAC-
Juncus effusus	common rush	H	FACW+
Juniperius virginiana	eastern redcedar	T/S	FACU-
Liquidambar styraciflua	sweetgum	T/S	FAC+
Lonicera japonica	Japanese honeysuckle	H	FACU
Morus rubra	red mulberry	T	FAC
Paspalum notatum	bahiagrass	H	FACU+
Pinus echinata	shortleaf pine	T	UPL
Pinus taeda	loblolly pine	T	FAC
Platanus occidentalis	American sycamore	T	FACW-
Polygonum spp	smartweed	H	OBL
Populus deltoides	eastern cottonwood	Y	FAC+
Pueraria montana	kudzu	V	NI
Quercus alba	white oak	T/S	UPL
Quercus falcata	southern red oak	T	FACU-
Quercus nigra	water oak	T/S	FAC
Quercus phellos	willow oak	T	FACW-
Quercus stellata	post oak	T	FACU
Rubus spp.	blackberry	S	FAC
Rhus copallinum	winged sumac	S	NI
Sapium sebiferum	Chinese tallow	S	FAC
Saururus cernuus	lizard's tail	H	OBL
Salix nigra	black willow	T	OBL
Sassafras albidium	sassafras	T/S	FACU
Smilax rotundifolia	greenbrier	H/V	FAC
Solidago spp.	goldenrod	S	FACU+
Sorghum halepense	Johnsongrass	H	FACU
Taxodium distichum	bald cypress	T	OBL
Toxicodendron radicans	poison ivy	V	FAC
Ulmus alata	winged elm	T/S	FACU+
Ulmus americana	American elm	T/S	FACW

APPENDIX C
Data Sheets

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: Long Beach Canal #1	Date: 10-14-08
Applicant/Owner: Long Beach Water Management District	County: Harrison
Investigator: S. Smith, P. Netterville	State: MS
Do Normal Circumstances exist on the site? (Yes) No	Community ID: PEM/PSS
Is the site significantly disturbed (Atypical Situation)? Yes (No)	Transect ID:
Is the area a potential Problem Area? Yes (No)	Plot ID: A
(If needed, explain on reverse.)	

VEGETATION

Photo #14

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. Scirpus cyperinus	H	OBL	9. Magnolia virginiana	T	FACW+
2. Juncus effusus	H	FACW+	10.		
3. Hypericum cistifolium	H	FACW	11.		
4. Solidago gigantea	H	FACW	12.		
5. Triadica sebifera	H	FAC	13.		
6. Rhynchospora corniculata	H	OBL	14.		
7. Rubus louisianus	H	FAC	15.		
8. Cyrilla racemiflora	H	FACW	16.		

"Percent of Dominant Species that are OBL, FACW or FAC" (excluding FAC-). 9/9 = 100%

Remarks:

PEM/PSS

HYDROLOGY

Y Recorded Data (Describe in Remarks):
- ___ Stream, Lake, or Tide Gauge
- X Aerial Photographs
- ___ Other
- ___ No Recorded Data Available

Field Observations:
- Depth of Surface Water: None (in.)
- Depth to Free Water in Pit: >16 (in.)
- Depth to Saturated Soil: Surface (in.)

Wetland Hydrology Indicators:

Primary Indicators:
- ___ Inundated
- X Saturated in Upper 12 Inches
- ___ Water Marks
- ___ Drift Lines
- ___ Sediment Deposits
- X Drainage Patterns in Wetlands

Secondary Indicators (2 or more required):
- ___ Oxidized Root Channels in Upper 12 Inches
- X Water-Stained Leaves
- ___ Local Soil Survey Data
- ___ FAC-Neutral Test
- ___ Other (Explain in Remarks)

Remarks:

Two primary and one secondary indicators observed

Plot A, Photo # 14

SOILS

Map Unit Name (Series and Phase): Ponzer & Smithton Soils (PS) Drainage Class: very poorly drained

Field Observations

Taxonomy (Subgroup): Terric Medisaprists Confirm Mapped Type? Yes No

Profile Descriptions:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/ Size/Contrast	Texture, Concretions, Structure, etc.
0-16	1	10YR 3/1	None	None	Sandy loam

Hydric Soil Indicators:

____	Histosol	____	Concretions
____	Histic Epipedon	____	High Organic Content in Surface Layer in Sandy Soils
____	Sulfidic Odor	____	Organic Streaking in Sandy Soils
____	Aquic Moisture Regime	X	Listed on Local Hydric Soils List
X	Gleyed or Low-Chroma Colors		Other (Explain in Remarks)

Remarks

Low chroma colors observed

WETLAND DETERMINATION

Hydrophytic Vegetation Present? (Yes) No (Circle)

Wetland Hydrology Present? (Yes) No

Hydric Soils Present? (Yes) No

Is this Sampling Point Within a Wetland? (Yes) No (Circle)

Remarks

All three criteria met -> Jurisdictional

Approved by HQUSACE 3/92

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: Long Beach Canal #1	Date: 10-14-08
Applicant/Owner: Long Beach Water Management District	County: Harrison
Investigator: S. Smith, E. Vetterville	State: MS

Do Normal Circumstances exist on the site?	(Yes)	No	Community ID: PEM
Is the site significantly disturbed (Atypical Situation)?	Yes	(No)	Transect ID:
Is the area a potential Problem Area? (If needed, explain on reverse.)	Yes	(No)	Plot ID: B

Photo# 15

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. Rhynchospora corniculata	H	OBL	9.		
2. Juncus effusus	H	FACW+	10.		
3. Polygonum hydropiperoides	H	OBL	11.		
4. Hypericum cistifolium	H	FACW	12.		
5. Triadica sebifera	T	FAC	13.		
6. Cyrilla racemiflora	H	FACW	14.		
7.			15.		
8.			16.		

"Percent of Dominant Species that are OBL, FACW or FAC" (excluding FAC-). 6/6 = 100%

Remarks:

PEM, connects to canal

HYDROLOGY

X Recorded Data (Describe in Remarks):	Wetland Hydrology Indicators:
___ Stream, Lake, or Tide Gauge	Primary Indicators:
X Aerial Photographs	X Inundated
___ Other	X Saturated in Upper 12 Inches
___ No Recorded Data Available	___ Water Marks
	___ Drift Lines
Field Observations:	___ Sediment Deposits
Depth of Surface Water: Surface (in.)	X Drainage Patterns in Wetlands
Depth to Free Water in Pit: Surface (in.)	Secondary Indicators (2 or more required):
Depth to Saturated Soil: Surface (in.)	___ Oxidized Root Channels in Upper 12 Inches
	___ Water-Stained Leaves
	___ Local Soil Survey Data
	___ FAC-Neutral Test
	___ Other (Explain in Remarks)

Remarks:

Three primary indicators observed

SOILS Plot B, Photo # 15

Map Unit Name (Series and Phase): Atmore silt loam — Drainage Class: poorly drained

Taxonomy (Subgroup): Plinthic Paleaquults — Field Observations Confirm Mapped Type? Yes No

Profile Descriptions:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/ Size/Contrast	Texture, Concretions, Structure, etc.
0-16	1	10YR 3/1	none	none	Sandy loam

Hydric Soil Indicators:

___ Histosol	___ Concretions
___ Histic Epipedon	___ High Organic Content in Surface Layer in Sandy Soils
___ Sulfidic Odor	___ Organic Streaking in Sandy Soils
___ Aquic Moisture Regime	X Listed on Local Hydric Soils List
X Gleyed or Low-Chroma Colors	Other (Explain in Remarks)

Remarks

Low-chroma colors observed

WETLAND DETERMINATION

Hydrophytic Vegetation Present? (Yes) No (Circle)

Wetland Hydrology Present? (Yes) No

Hydric Soils Present? (Yes) No

Is this Sampling Point Within a Wetland? (Yes) No (Circle)

Remarks

all three criteria met → Jurisdictional

Approved by HQUSACE 3/92

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: Long Beach Canal #1	Date: 10-14-08
Applicant/Owner: Long Beach Water Management District	County: Harrison
Investigator: S. Smith, E. Vetterville	State: MS

Do Normal Circumstances exist on the site?	(Yes)	No	Community ID: PEM
Is the site significantly disturbed (Atypical Situation)?	Yes	(No)	Transect ID:
Is the area a potential Problem Area? (If needed, explain on reverse.)	Yes	(No)	Plot ID: C

Photo #16

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. Arundinaria gigantea	H	FACW	9.		
2. Rhynchospora corniculata	H	OBL	10.		
3. Hypericum cistifolium	H	FACW	11.		
4. Schizachyrium scoparium	H	FACU	12.		
5. Sorghum halepense	H	FACU	13.		
6. Dichanthelium acuminatum	H	FAC	14.		
7.			15.		
8.			16.		

"Percent of Dominant Species that are OBL, FACW or FAC" (excluding FAC-). 4/6 = 66%

Remarks:

PEM on Powerline right-of-way

HYDROLOGY

X Recorded Data (Describe in Remarks):	Wetland Hydrology Indicators:
___ Stream, Lake, or Tide Gauge	Primary Indicators:
X Aerial Photographs	___ Inundated
___ Other	X Saturated in Upper 12 Inches
___ No Recorded Data Available	___ Water Marks
	___ Drift Lines
Field Observations:	___ Sediment Deposits
Depth of Surface Water: none (in.)	___ Drainage Patterns in Wetlands
Depth to Free Water in Pit: > 16 (in.)	Secondary Indicators (2 or more required):
Depth to Saturated Soil: Surface (in.)	X Oxidized Root Channels in Upper 12 Inches
	___ Water-Stained Leaves
	___ Local Soil Survey Data
	___ FAC-Neutral Test
	___ Other (Explain in Remarks)

Remarks:

One primary and secondary indicator observed

Plot C, Photo #16

SOILS

Map Unit Name (Series and Phase): Atmore silt loam (At) — Drainage Class: poorly drained

Taxonomy (Subgroup): Plinthic Paleaquults — Field Observations Confirm Mapped Type? Yes No

Profile Descriptions:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/ Size/Contrast	Texture, Concretions, Structure, etc.
0-16	1	10YR 3/1	none	none	sandy loam

Hydric Soil Indicators:

- ____ Histosol
- ____ Histic Epipedon
- ____ Sulfidic Odor
- ____ Aquic Moisture Regime
- X Gleyed or Low-Chroma Colors
- ____ Concretions
- ____ High Organic Content in Surface Layer in Sandy Soils
- ____ Organic Streaking in Sandy Soils
- X Listed on Local Hydric Soils List
- ____ Other (Explain in Remarks)

Remarks

Low chroma colors observed

WETLAND DETERMINATION

Hydrophytic Vegetation Present? (Yes) No (Circle)
Wetland Hydrology Present? (Yes) No
Hydric Soils Present? (Yes) No

Is this Sampling Point Within a Wetland? (Yes) No (Circle)

Remarks

All three criteria met -> Jurisdictional

Approved by HQUSACE 3/92

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: Long Beach Canal #1	Date: 10-14-08
Applicant/Owner: Long Beach Water Management District	County: Harrison
Investigator: S Smith, E. Detenville	State: MS

Do Normal Circumstances exist on the site?	(Yes)	No	Community ID: PEM
Is the site significantly disturbed (Atypical Situation)?	Yes	(No)	Transect ID:
Is the area a potential Problem Area? (If needed, explain on reverse.)	Yes	(No)	Plot ID: D

VEGETATION

Photo #18

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. Hypericum cistifolium	H	FACW	9.		
2. Schizachyrium scoparium	H	FACU	10.		
3. Magnolia virginiana	T	FACW+	11.		
4. Quercus nigra	T	FAC	12.		
5. Solidago altissima	H	FACU+	13.		
6. Eupatorium capillifolium	H	FACU	14.		
7. Dichanthelium acuminatum	H	FAC	15.		
8.			16.		

"Percent of Dominant Species that are OBL, FACW or FAC" (excluding FAC-). 4/7 = 57%

Remarks:

PEM on a powerline right-of-way near electric substation

HYDROLOGY

X Recorded Data (Describe in Remarks):	Wetland Hydrology Indicators:
___ Stream, Lake, or Tide Gauge	Primary Indicators:
X Aerial Photographs	___ Inundated
___ Other	X Saturated in Upper 12 Inches
___ No Recorded Data Available	___ Water Marks
	___ Drift Lines
Field Observations:	___ Sediment Deposits
Depth of Surface Water: none (in.)	___ Drainage Patterns in Wetlands
Depth to Free Water in Pit: >16 (in.)	Secondary Indicators (2 or more required):
Depth to Saturated Soil: Surface (in.)	___ Oxidized Root Channels in Upper 12 Inches
	___ Water-Stained Leaves
	___ Local Soil Survey Data
	___ FAC-Neutral Test
	___ Other (Explain in Remarks)

Remarks:

One primary indicator observed

Plot D, Photo # 18

SOILS

Map Unit Name (Series and Phase): Ponzer & Smithton Soils (PS)

Drainage Class: very poorly drained

Field Observations

Taxonomy (Subgroup): Terric Medisaprists

Confirm Mapped Type? Yes No

Profile Descriptions:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/ Size/Contrast	Texture, Concretions, Structure, etc.
0-1	1	–	–	–	organic/sand
1-16	2	10YR 3/1	none	none	sandy loam

Hydric Soil Indicators:

____	Histosol	____	Concretions
____	Histic Epipedon	____	High Organic Content in Surface Layer in Sandy Soils
____	Sulfidic Odor	____	Organic Streaking in Sandy Soils
____	Aquic Moisture Regime	X	Listed on Local Hydric Soils List
X	Gleyed or Low-Chroma Colors		Other (Explain in Remarks)

Remarks

Low chroma colors observed

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	(Yes)	No	(Circle)	
Wetland Hydrology Present?	(Yes)	No		(Circle)
Hydric Soils Present?	(Yes)	No	Is this Sampling Point Within a Wetland?	(Yes) No

Remarks

All three criteria met -> Jurisdictional

Approved by HQUSACE 3/92

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: Long Beach Canal No. 1 Applicant/Owner: Long Beach Water Management District Investigator: S. Smith & E. Netterville	Date: 4/22/09 County: Harrison State: MS
Do Normal Circumstances exist on the site? (Yes) No Is the site significantly disturbed (Atypical Situation)? Yes (No) Is the area a potential Problem Area? Yes (No) (If needed, explain on reverse.)	Community ID: PEM Transect ID: Plot ID: E

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. Juncus effusus	H	FACW+	9.		
2. Rubus louisianus	H	FAC	10.		
3. Sapium sebiferum	S	FAC	11.		
4. Acer rubrum	S	FAC	12.		
5. Solidago gigantea	H	FACW	13.		
6. Lonicera japonica	H	FACU	14.		
7.			15.		
8.			16.		

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-). 5/6 = 83%

Remarks:
Maintained Power line ROW

HYDROLOGY

X Recorded Data (Describe in Remarks): ___ Stream, Lake, or Tide Gauge X Aerial Photographs ___ Other ___ No Recorded Data Available	Wetland Hydrology Indicators: Primary Indicators: ___ Inundated X Saturated in Upper 12 Inches ___ Water Marks ___ Drift Lines X Sediment Deposits X Drainage Patterns in Wetlands Secondary Indicators (2 or more required): ___ Oxidized Root Channels in Upper 12 Inches ___ Water-Stained Leaves ___ Local Soil Survey Data ___ FAC-Neutral Test ___ Other (Explain in Remarks)
Field Observations: Depth of Surface Water: None (in.) Depth to Free Water in Pit: 12 (in.) Depth to Saturated Soil: Ø (in.)	

Remarks:
Fringe wetland near lake

SOILS Plot E

Map Unit Name (Series and Phase): Ponzer & Smithton Soils (Ps) Drainage Class: Very poorly drained
Field Observations
Taxonomy (Subgroup): Terric Medisaprists Confirm Mapped Type? Yes No

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/ Size/Contrast	Texture, Concretions, Structure, etc.
0-4	1	N/A	—	—	organic
4-16	2	5YR 6/1	5YR 4/6	Comon/large	sand

Hydric Soil Indicators:

- ___ Histosol
- ___ Histic Epipedon
- ___ Sulfidic Odor
- ___ Aquic Moisture Regime
- ___ Reducing Conditions
- X Gleyed or Low-Chroma Colors
- ___ Concretions
- X High Organic Content in Surface Layer in Sandy Soils
- X Organic Streaking in Sandy Soils
- X Listed on Local Hydric Soils List
- ___ Listed on National Hydric Soils List
- ___ Other (Explain in Remarks)

Remarks:

Four primary indicators observed

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	(Yes) No (Circle)	(Circle)
Wetland Hydrology Present?	(Yes) No	Is this Sampling Point Within a Wetland? (Yes) No
Hydric Soils Present?	(Yes) No	

Remarks:

All three criteria met → Jurisdictional

Approved by HQUSACE 3/92

Appendix B Blank and Example Data Forms B3

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site:	Long beach Canal #1	Date:	10-14-08
Applicant/Owner:	Long beach Water Management District	County:	Harrison
Investigator:	S. Smith, E. Netterville	State:	MS

Do Normal Circumstances exist on the site?	(Yes)	No	Community ID:	UPL
Is the site significantly disturbed (Atypical Situation)?	Yes	(No)	Transect ID:	
Is the area a potential Problem Area? (If needed, explain on reverse.)	Yes	(No)	Plot ID:	U1

VEGETATION Photo #11

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. Triadica sebifera	H/S	FAC	9.		
2. Acer rubrum	S	FAC	10.		
3. Morella cerifera	S	FAC+	11.		
4. Rubus louisianus	H	FAC	12.		
5. Quercus nigra	T/S	FAC	13.		
6. Baccharis halimifolia	H	FAC	14.		
7.			15.		
8.			16.		

"Percent of Dominant Species that are OBL, FACW or FAC" (excluding FAC-). 6/6 = 100%

Remarks:

Upland area dominated by C. tallow

HYDROLOGY

- X Recorded Data (Describe in Remarks):
  - ___ Stream, Lake, or Tide Gauge
  - X Aerial Photographs
  - ___ Other
- ___ No Recorded Data Available

Field Observations:

Depth of Surface Water:	None	(in.)
Depth to Free Water in Pit:	>16	(in.)
Depth to Saturated Soil:	>16	(in.)

Wetland Hydrology Indicators:

Primary Indicators:
- ___ Inundated
- ___ Saturated in Upper 12 Inches
- ___ Water Marks
- ___ Drift Lines
- ___ Sediment Deposits
- ___ Drainage Patterns in Wetlands

Secondary Indicators (2 or more required):
- ___ Oxidized Root Channels in Upper 12 Inches
- ___ Water-Stained Leaves
- ___ Local Soil Survey Data
- ___ FAC-Neutral Test
- ___ Other (Explain in Remarks)

Remarks:

No indicators observed

Plot: U1, Photo #11

SOILS

Map Unit Name (Series and Phase): Atmore silt loam (At) Drainage Class: poorly drained

Field Observations

Taxonomy (Subgroup): Plinthic Paleaquults Confirm Mapped Type? Yes No

Profile Descriptions:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/ Size/Contrast	Texture, Concretions, Structure, etc.
0-16	1	10YR 5/1	None	None	silt loam

Hydric Soil Indicators:

____	Histosol	____	Concretions
____	Histic Epipedon	____	High Organic Content in Surface Layer in Sandy Soils
____	Sulfidic Odor	____	Organic Streaking in Sandy Soils
____	Aquic Moisture Regime	X	Listed on Local Hydric Soils List
X	Gleyed or Low-Chroma Colors		Other (Explain in Remarks)

Remarks

Low-chroma colors observed

WETLAND DETERMINATION

Hydrophytic Vegetation Present? (Yes) No (Circle)

Wetland Hydrology Present? Yes (No)

Hydric Soils Present? (Yes) No

Is this Sampling Point Within a Wetland? Yes (No) (Circle)

Remarks

All three criteria not met → Non-Jurisdictional

Approved by HQUSACE 3/92

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: Long Beach Canal #1
Applicant/Owner: Long Beach Water Management District
Investigator: S. Smith, E. Netherville
Date: 10-16-08
County: Harrison
State: MS

Do Normal Circumstances exist on the site? (Yes) No
Is the site significantly disturbed (Atypical Situation)? Yes (No)
Is the area a potential Problem Area? Yes (No)
(If needed, explain on reverse.)

Community ID: UPL
Transect ID:
Plot ID: UB

Photo # 40

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. Schizachyrium scoparium	H	FACU	9.		
2. Hypericum cistifolium	H	FACW	10.		
3. Solidago altissima	H	FACU+	11.		
4. Cynodon dactylon	H	FACU	12.		
5.			13.		
6.			14.		
7.			15.		
8.			16.		

"Percent of Dominant Species that are OBL, FACW or FAC" (excluding FAC-). 1/4 = 25%

Remarks:

Pasture on powerline right-of-way

HYDROLOGY

X Recorded Data (Describe in Remarks):
___ Stream, Lake, or Tide Gauge
X Aerial Photographs
___ Other
___ No Recorded Data Available

Field Observations:
Depth of Surface Water: none (in.)
Depth to Free Water in Pit: >16 (in.)
Depth to Saturated Soil: >16 (in.)

Wetland Hydrology Indicators:
Primary Indicators:
___ Inundated
___ Saturated in Upper 12 Inches
___ Water Marks
___ Drift Lines
___ Sediment Deposits
___ Drainage Patterns in Wetlands
Secondary Indicators (2 or more required):
___ Oxidized Root Channels in Upper 12 Inches
___ Water-Stained Leaves
___ Local Soil Survey Data
___ FAC-Neutral Test
___ Other (Explain in Remarks)

Remarks:

No indicators observed

Plot U2, Photo #40

SOILS

Map Unit Name (Series and Phase): Plummer loamy sand (Pm) Drainage Class: poorly drained

Taxonomy (Subgroup): Grossarenic Paleudults Field Observations Confirm Mapped Type? Yes No

Profile Descriptions:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/ Size/Contrast	Texture, Concretions, Structure, etc.
0-16	A 1	10YR 5/2	none	none	sand

Hydric Soil Indicators:

____ Histosol	____ Concretions
____ Histic Epipedon	____ High Organic Content in Surface Layer in Sandy Soils
____ Sulfidic Odor	____ Organic Streaking in Sandy Soils
____ Aquic Moisture Regime	X Listed on Local Hydric Soils List
x Gleyed or Low-Chroma Colors	Other (Explain in Remarks)

Remarks

Low chroma colors observed

WETLAND DETERMINATION

Hydrophytic Vegetation Present? Yes (No) (Circle)

Wetland Hydrology Present? Yes (No)

Hydric Soils Present? (Yes) No

Is this Sampling Point Within a Wetland? Yes (No) (Circle)

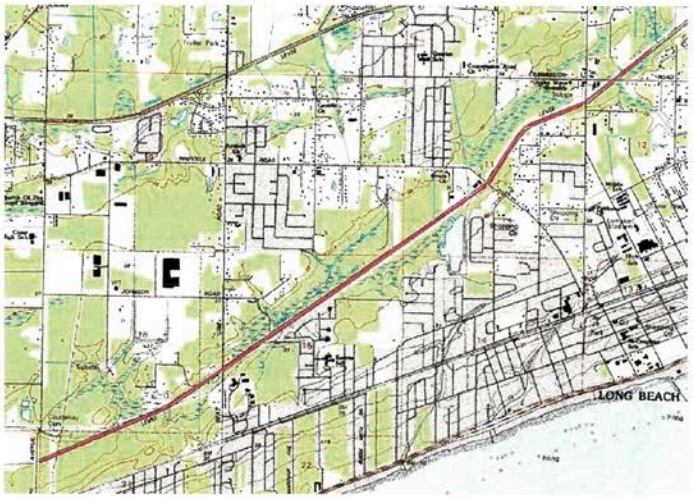
Remarks

All three criteria not met → Non-jurisdictional

Approved by HQUSACE 3/92

Phase I Cultural Resources Survey

PHASE I CULTURAL RESOURCES SURVEY FOR CANAL NO. 1 CHANNEL MODIFICATIONS, LONG BEACH WATER MANAGEMENT DISTRICT, HARRISON COUNTY, MISSISSIPPI



December 2008

EARTH SEARCH, INC.
P.O. Box 770336
New Orleans, LA 70177-0336

Submitted to

Neel-Schaffer, Inc.
800 Jackson Avenue, Suite C
Mandeville, LA 70448

PHASE I CULTURAL RESOURCES SURVEY FOR CANAL NO. 1 CHANNEL MODIFICATIONS, LONG BEACH WATER MANAGEMENT DISTRICT, HARRISON COUNTY, MISSISSIPPI

By

Jason Kennedy, Jeanne Marquez, and Rhonda L. Smith

Submitted by

Jill-Karen Yakubik, Ph.D., RPA
Principal Investigator

Earth Search, Inc.
P.O. Box 770336
New Orleans, LA 70177-0336

Prepared for

Neel-Schaffer, Inc.
800 Jackson Avenue, Suite B
Mandeville, LA 70448

December 2008

ABSTRACT

Earth Search, Inc. (ESI), undertook a Phase I survey and cultural resources assessment for the proposed modifications to Canal No. 1, Long Beach, Harrison County, Mississippi, for Neel-Schaffer, Inc. Field investigations included pedestrian survey, judgmental shovel testing, and a architectural survey. The work was necessary as part of a supplemental Environmental Impact Statement (EIS). For the purposes of the archaeological survey the Area of Potential Effects (APE) consists of a 30 meter (m) (98.4 foot [ft]) area paralleling either side of the canal. The project area includes approximately 100.5 acres (A) (40.7 hectares [ha]). Shovel testing and pedestrian survey did not reveal any artifacts or culture-bearing strata in the project area. There is no evidence of archaeological deposits in the area. For the purposes of the architectural survey the APE includes a 400 m (0.25 mile [mi]) buffer of the canal totaling approximately 670.2 A (272 ha). The standing structure survey recorded one cemetery greater than 50 years of age within the APE. The National Register of Historic Places (NRHP) eligibility of the cemetery is undetermined. Proposed channel modifications will have no impact on the cemetery. The proposed modifications will have no affect on historic resources. No additional cultural resources investigations are recommended.

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CHAPTER 1
INTRODUCTION

On October 15-17, 2008, Earth Search, Inc. (ESI), performed a Phase I survey and cultural resources managment assessment for the proposed channel modifications to Canal No. 1, Long Beach Water District, Harrison County, Mississippi. The work was undertaken for Neel-Schaffer, Inc., as part of a supplemental Environmental Impact Statement (EIS). Both an archaeological and an architectural survey were performed. Prior to the commencement of fieldwork, a comprehensive literature search and records review was performed. Background research included examination of records on file at the Mississippi Department of Archives and History (MDAH), Jackson, Mississippi. Cultural resources reports, site files, and National Register of Historic Places (NRHP) records were reviewed for the project area. Also, previously recorded standing structures were reviewed. Geomorphological data, maps, and aerial photographs were examined and reviewed. Historical research included a review of available secondary documentation such as local and regional historic archives and records. This report provides the results of the background research and field investigations.

Project Area Description

The project area includes that part of Canal No. 1 that extends approximately 4.2 miles (mi) (6.8 kilometers [km]) eastward from Espy Avenue to just northeast of the intersection of Commission and Klondyke roads (Figure 1). For the purposes of the archaeological survey, the Area of Potential Effect (APE) was restricted to an area lying 30 meters (m) (98.4 feet [ft]) from each side of the canal and parallel to it. This includes approximately 100.5 acres (A) (40.7 hectares [ha]). For the purposes of the architectural survey, the APE includes a 400 m (0.25 mile [mi]) buffer of the canal totaling approximately 670.2 A (272 ha).

Report Organization

Chapter 2 presents previous investigations undertaken in the vicinity of the project area. Chapter 3 details the methodology and results of the field investigations. Chapter 4 provides ESI's conclusions and recommendations.

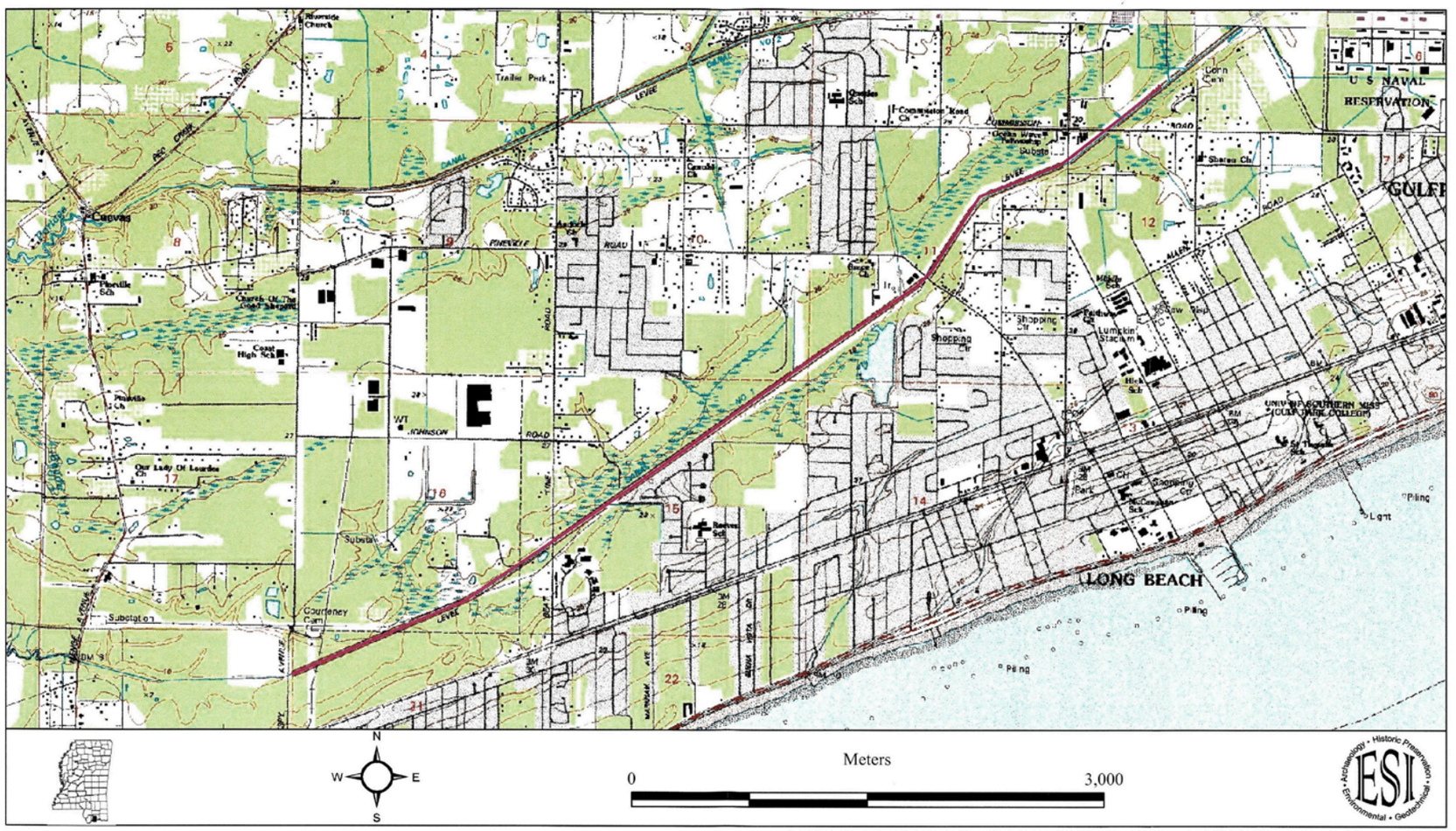

Figure 1. Excerpts from the USGS *Pass Christian* and *Gulfport NW, MS* 1:24,000 topographic quadrangles showing the project area, in pink.

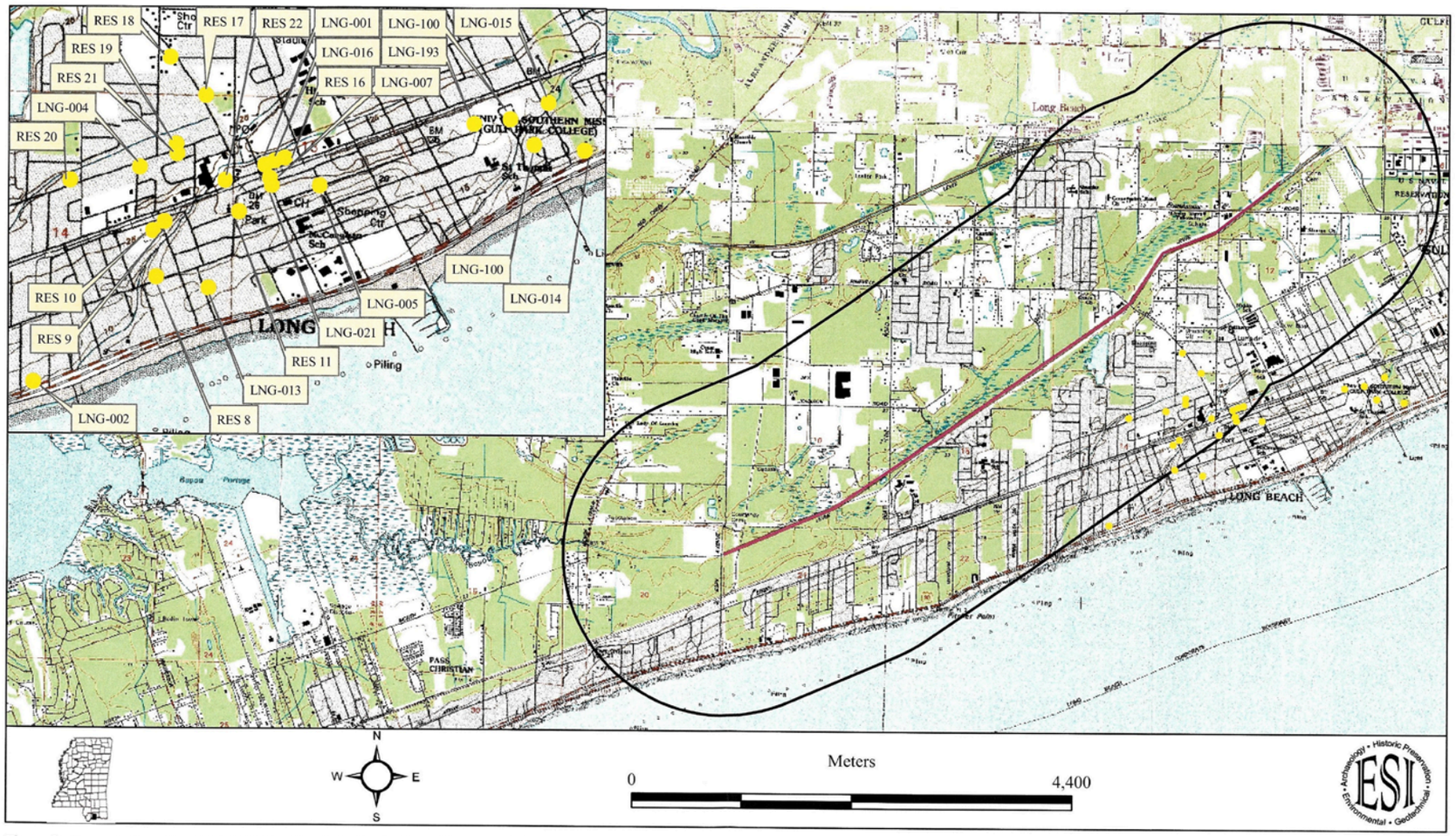

Figure 2. Excerpts from the USGS *Vidalia*, *Bay Saint Louis*, *Pass Christian*, *Gulfport S*, *Gulfport N*, and *Gulfport NW, MS* 1:24,000 topographic quadrangles showing the project area, a one-mile buffer, and the locations of historic standing structures within approximately one-mile of the project area.

CHAPTER 2
PREVIOUS INVESTIGATIONS

Research at the MDAH, Jackson, revealed that 13 previous cultural resources surveys have been undertaken within one mile (1.6 km) of Canal No. 1. Also, one archaeological site and numerous standing structures greater than 50 years of age have been previously recorded within the buffer area. The previous investigations are summarized below. Table 1 at the end of this chapter lists the previously recorded structures. Four of the reports were not available at that time that the research was undertaken: Lauro 1988, Stowe and Stowe 2001a, Lauro 2007, and Lauro 2008a.

Mann 1993

On September 26, 1993, Cyril B. Mann Jr. conducted a survey for a proposed condominium in Harrison County, Mississippi. Pedestrian survey was conducted with shovel tests excavated at 20-m (65.62 ft) intervals over the 21 A (8.49 ha) tract of land. No cultural resources were identified during the course of this survey (Mann 1993).

Mann 1994a

On March 31 and April 1, 1994, Mann conducted a survey for a proposed construction site in Harrison County, Mississippi. The project area was a 20.15 A (8.15 ha) tract of land just to the north of U.S. 90. Pedestrian survey was conducted with shovel tests excavated at 25-m (82.02 ft) intervals. No cultural resources were identified during the course of this survey (Mann 1994a).

Mann 1994b

On June 15, 1994, Mann conducted a survey for Lewis and Mitchell, Inc., of a proposed site for in the Long Beach Industrial Park in Harrison County, Mississippi. The project area was a 150 A (3.56 ha) tract of land just to the east of Johnson Bayou. Pedestrian survey was performed with shovel tests excavated at 25-m (82.02 ft) intervals. No cultural resources were identified during the course of this survey (Mann 1994b).

Mann 1995

In August 1995, Mann conducted a survey for a proposed construction site in Harrison County, Mississippi. Pedestrian survey was conducted with shovel tests excavated at 25-m (82.02 ft) intervals over the 150 A (60.69 ha) project area. No cultural resources were identified during the course of this survey (Mann 1995).

Lauro 2000

In December 2000, James Lauro conducted a cultural resources survey in Harrison County, Mississippi. The project area was approximately 18 A (7.27 ha). Fieldwork included pedestrian survey and shovel testing at 20 meter-m (65.62 ft) intervals. One early- to mid-twentieth century site was identified during survey; however, it was not assigned a site number by MDAH. No other cultural resources were recorded as a result of this survey (Lauro 2000).

Stowe and Stowe 2001b

On August 29, 2001, Noel and Rebecca Stowe conducted a cultural resources survey of a 12 A (4.85 ha) proposed development in Long Beach, Harrison County, Mississippi. The project

area was pedestrian surveyed with judgmental shovel tests excavated in high probability areas. Two structures were noted in the report but neither was stated as being greater than 50 years of age. No other cultural resources were identified (Stowe and Stowe 2001b).

Banguilan et al. 2007

In February 2007, FEMA conducted a Phase I survey for the Long Beach School District for the proposed construction of a new Harper McCaughan Elementary School because the original school was damaged beyond repair by Hurricane Katrina. The proposed project area consisted of 85.71 A (34.63 ha) on Commission Road. One site, 22HR973, was recorded during the course of fieldwork. It is believed to have been the historic location for the Hahn Brothers Nursery as historic artifacts consistent with the operation of a nursery and cement piers were located at the site. Site 22HR973 was considered ineligible for nomination to the NRHP. No other cultural resources were identified as a result of this survey (Banguilan et al. 2007).

Lauro 2008b

In February 2008, Lauro conducted a cultural resources survey for Waggoner Engineering in Harrison County, Mississippi. The project area was approximately 38 A (15.35 ha) and was pedestrian surveyed with judgmental shovel testing. No cultural resources were identified as a result of this survey (Lauro 2008b)

Lauro 2008c

In late April and early May 2008, Lauro conducted a cultural resources survey for Waggoner Engineering in Harrison County, Mississippi. The approximately 27 A (10.93 ha) project area was pedestrian surveyed and shovel tested. No cultural resources were identified as a result of this survey (Lauro 2008c).

Standing Structures

There have been 29 structures greater than 50 years of age recorded within one mile (1.6 km) of the project area (Table 1 and Figure 2). Of those, one is listed on the NRHP, three are considered eligible for nomination to the NRHP, and six are potentially eligible for nomination. A portion of the Scenic Drive Historic District, a National Register Historic District (NRHD), is also within the one mile buffer and along the Pass Christian gulf shore. All of the structures are located in and around the community of Long Beach.

Table 1. Previously Recorded Standing Structures Greater Than 50 Years of Age.

State #	Property Name	Street Address	Date	Use	Form	Style	NRHP Status
047-LNG-001	Greenvale; W. J. Quarles Homeplace	122 E. Railroad Ave.	1884	vacant	2 Story Cottage	Victorian	listed
047-LNG-002	Boggsdale	632-36 W. Beach Blvd.	c. 1865	N/A	N/A	N/A	N/A
047-LNG-004	Watts House	107 W. 4th Ave.	c.1890	res	N/A	N/A	potentially eligible
047-LNG-005	McGinnis-Wharton Hall; Long Beach Presbyterian Church	200 Second St.	1936	rel	Cottage	Minimal Traditional	ineligible
047-LNG-007	Hancock County Bank Building; Southern Star Lodge	126 Jeff Davis Ave.	1926	lodge	Freestanding Commercial	Classical Revival	eligible
047-LNG-013	Rev. William T. Griffin House	426 Russell Ave.	1908	res	2 Story Central Hall	Greek Revival	potentially eligible
047-LNG-014	Oakhaven	822 E. Beach Blvd.	c. 1900	res	Queen Anne Cottage	Victorian	potentially eligible
047-LNG-015		134 Beach Park Pl.	1930	res	N/A	N/A	eligible
047-LNG-016		Next to 122 E. Railroad Ave.	c. 1850	res	Farm House	N/A	N/A
047-LNG-021	Long Beach City Hall	201 Jeff Davis Ave.	N/A	N/A	N/A	N/A	N/A
047-LNG-100	Gulf Park Campus, University of Mississippi	Gulf Park College	1900-1956	ed	Multiple	Multiple	N/A
047-LNG-101	Administration Building, Gulf Park Campus, University of Mississippi	N/A	N/A	N/A	N/A	N/A	N/A
047-LNG-103	Lloyd Hall, Gulf Park Campus, University of Mississippi	N/A	N/A	N/A	N/A	N/A	N/A
Resource #8		426 Magnolia St.	c. 1920	res	N/A	N/A	ineligible
Resource #9		109 Girard St.	c. 1925	res	N/A	N/A	ineligible
Resource #10	Long Beach Cemetery	Girard St. & W. 1st St.	late 19th C	cem	Brick-masonry tombs & stone headstones	N/A	ineligible
Resource #11		Pine St. W. of Church St.	c. 1935	res	N/A	Craftsman	ineligible
Resource #16	H. Y. Quarles House	124 E. Railroad St.	c. 1907	res	N/A	N/A	potentially eligible
Resource #17		19050 Pineville Rd.	c. 1930	res	N/A	Craftsman	ineligible
Resouce #18		Pineville Rd., opposite Park Lane	c. 1925	res	N/A	Craftsman	ineligible
Resource #19		307 W. Old Pass Rd.	c. 1900	res	L-shape	N/A	N/A
Resource #20		620 W. Old Pass Rd.	c. 1905	res	Front-gable	N/A	N/A
Resource #21	Mt. Pilgrim Missionary Baptist Church	306 w. old Pass Rd.	1938	ecc	N/A	N/A	N/A
Resource #22		220 Railroad St.	c. 1905	res	N/A	Craftsman	N/A

CHAPTER 3
FIELD INVESTIGATIONS

Archaeological Survey

Methods. Field investigations in the project area consisted of pedestrian survey and judgmental shovel testing. Two transects, one on either side of the canal, were surveyed. These transects were located within 30 m (98.4 ft) of the canal bankline. Shovel testing was restricted to high probability areas defined on the basis of the local geomorphology. Shovel tests measured 30 centimeters (cm) (12 inches [in]) in diameter and were excavated to a maximum depth of 50 cm below surface (cmbs) (20 inbs). Excavated soils were screened through 0.25 in (6.4 mm) mesh. The stratigraphic associations in each shovel test were recorded using standard nomenclature. Shovel tests were backfilled upon conclusion.

Results. Along 50-70 percent of the canal, unimproved roads and cleared residential properties parallel the canal alignment and provided excellent ground visibility for the pedestrian survey. Although modern debris (e.g. bottles, cans, etc.) was scattered lightly throughout the area, no artifacts were noted during the pedestrian survey. Shovel tests in the high probability areas revealed two strata (Figure 3). Stratum I is a mixed 10YR 3/2 (very dark grayish brown) and 10YR 7/1 (light gray) sand (0-35 cmbs [0-13.8 inbs]). Stratum II is a 10YR 71 (light gray) sand (35-50 cmbs [13.8-20 inbs]). All shovel tests were negative. Also, there is no evidence of culture-bearing strata in the project area.

Architectural Survey

For the purposes of the architectural survey an APE of 400 m (0.25 mi) was established (200 m [0.125 mi] to either side of the centerline). Within the APE, all standing structures greater than 50 years of age were recorded utilizing MDAH Historic Resource Inventory forms. Photographs were taken using a Nikon digital camera. A single cultural resource, a historic/modern cemetery was recorded in the APE (Figure 4). The Resource Inventory form for this property is included in Appendix A.

Courtenay Cemetery. This unmarked cemetery is approximately 100 m (328.1 ft) due east of Espy Avenue with no apparent entrance (Figure 5). The roughly square-shaped parcel is accessed via an easy-to-miss, unmarked gravel lane. There is no gateway or other type of formal entrance. The cemetery seems completely unplanned, with markers randomly placed and no drives or site features other than shade trees. There are approximately 50 marked burials, but the names are indiscernible on some. All but one burial is below ground. It is apparent by the style of construction that the single, above-ground, brick-masonry tomb is the oldest in the cemetery, however, it has no visible date (Figure 6). The only other high-style marker is a granite obelisk (Figure 7). Of the remaining modern headstones, the majority are the more mainstream, granite markers while there are several simple, folk-style markers of poured concrete or those covered in tile (Figures 8 and 9). The cemetery evolved in a few phases. The earliest burial is dated 1892 while the majority came in three waves between 1950 and 1980 (Figure 10). This nearly hidden cemetery lies at the very edge of the 0.125 mi buffer, therefore, channel modifications will have no effect on the property.

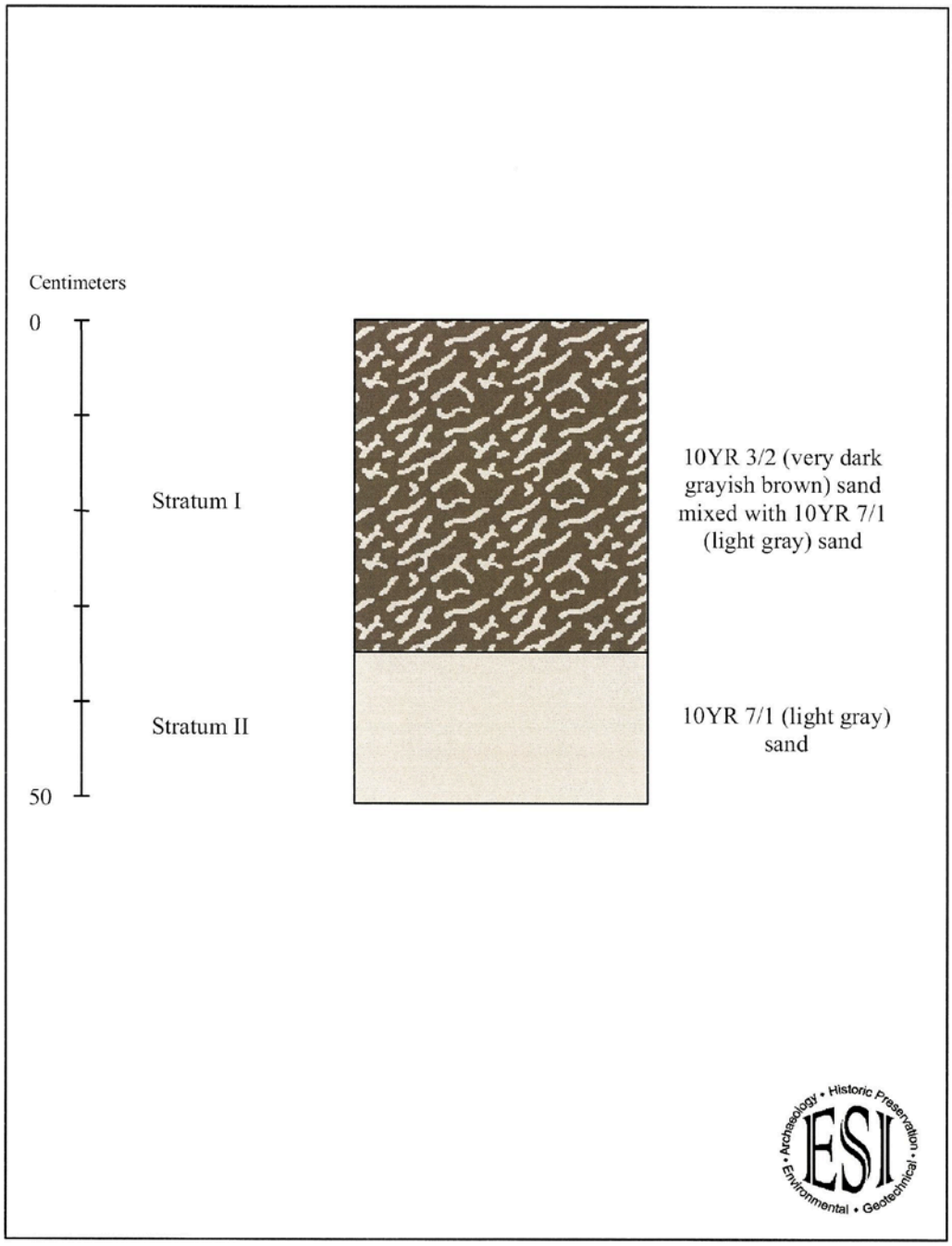

Figure 3. Typical shovel test profile.

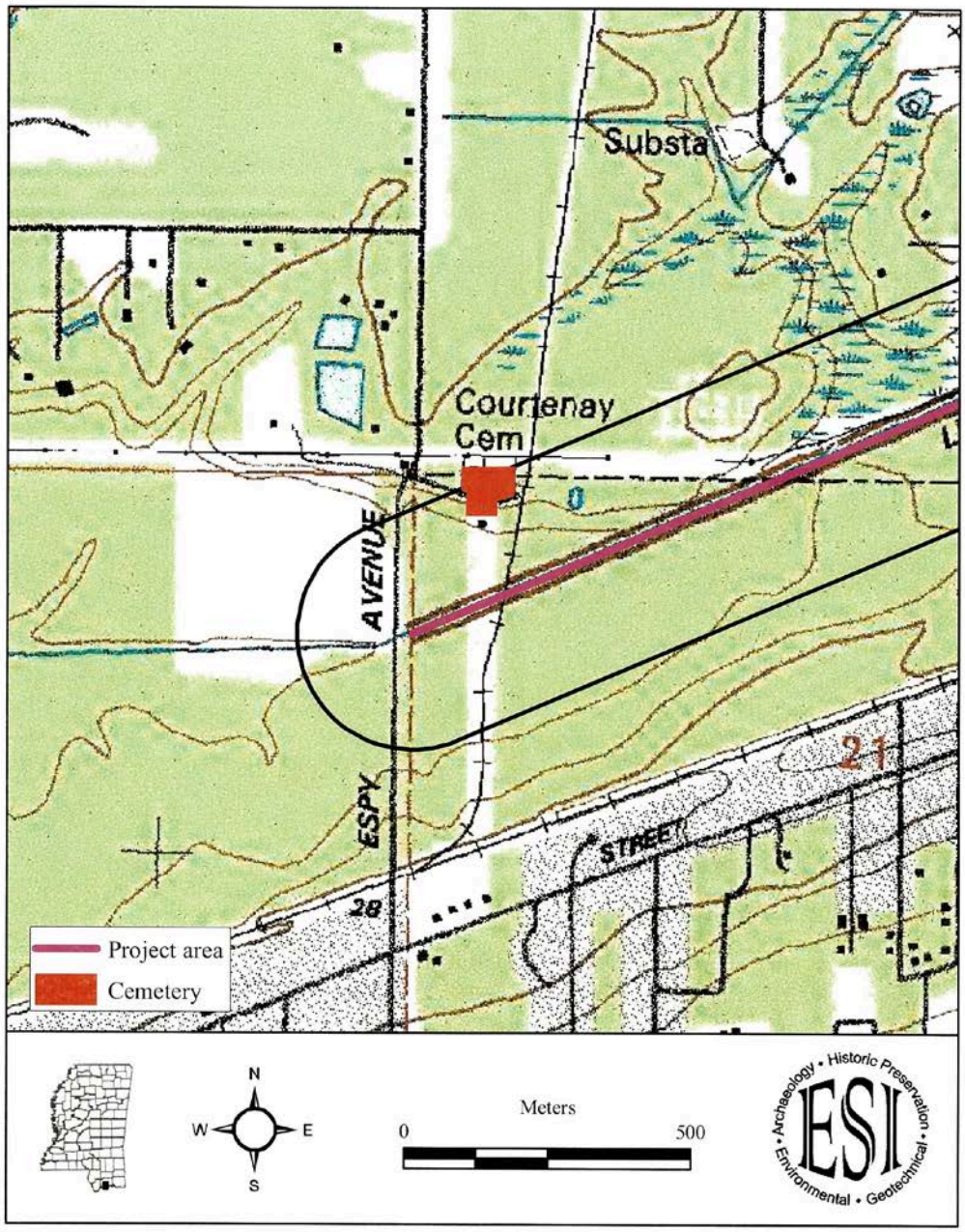

Figure 4. Excerpts from the USGS *Pass Christian* and *Gulfport NW, MS* 1:24,000 topographic quadrangles showing the location of Courtenay Cemetery in relation to the project area.

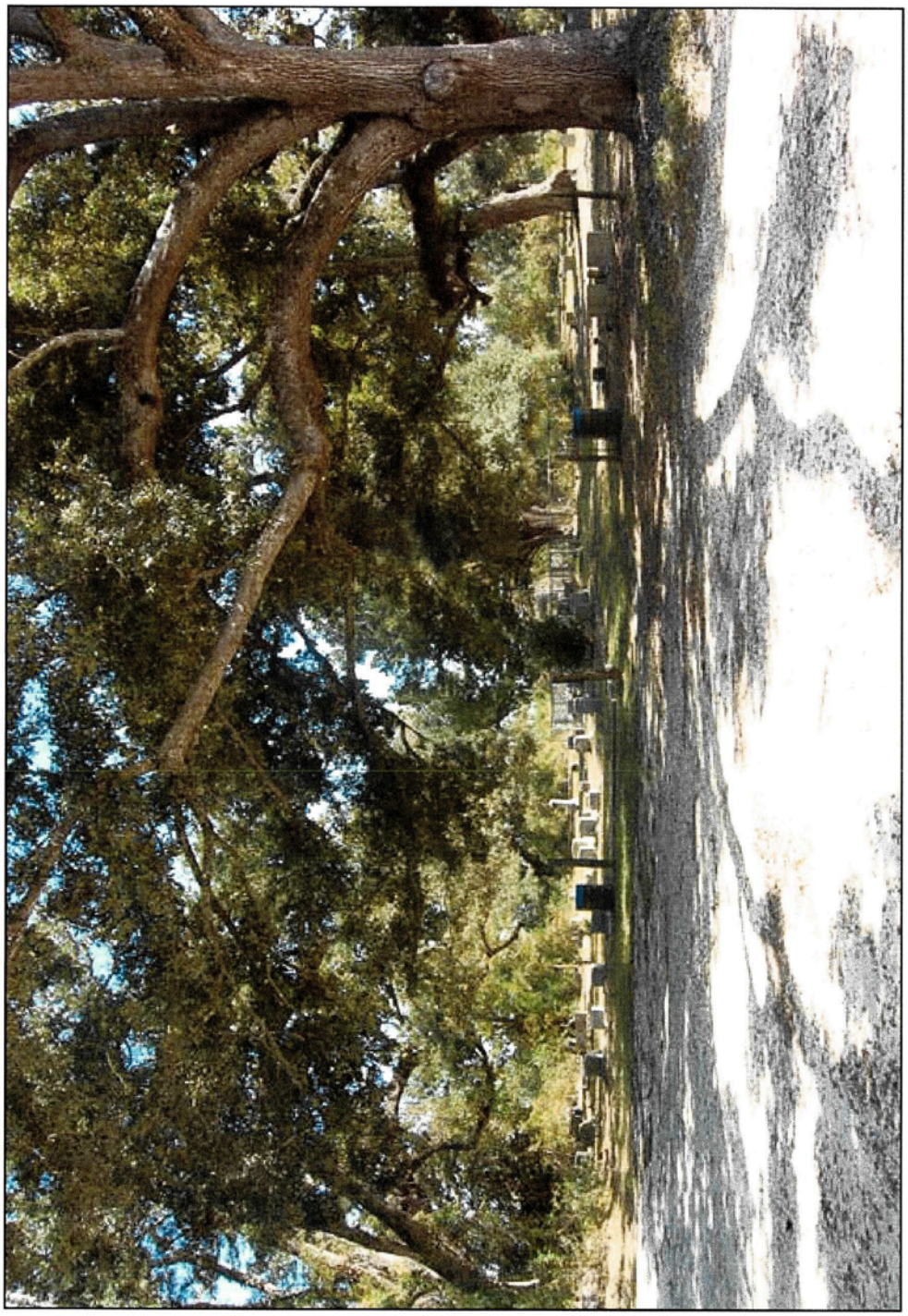

Figure 5. Landscape of Courtanay Cemetery.

Figure 6. Above-ground tomb (Reach's family vault).

Figure 7. Photo of granite.

Figure 8. Folk grave marker.

Figure 9. Folk grave markers.

Figure 10. Photo of earliest grave marker.

CHAPTER 4
CONCLUSIONS AND RECOMMENDATIONS

ESI conducted a Phase I survey and cultural resources assessment of the Canal No. 1 project area in Long Beach, Mississippi. The work was performed for Neel-Schaffer, Inc., as part of a supplemental EIS for proposed channel modification. Pedestrian survey and shovel testing throughout the project area did not result in the recordation of any new archaeological sites. The architecture survey identified one historic/modern cemetery within 0.25 mi (400 m) of the project area. Proposed modifications including channel widening and spoil deposition will have no affect on Courtenay Cemetery. It is ESI's opinion that planned modifications to Canal No. 1 will have no affect on historic resources. No additional cultural resources investigations are recommended.

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2008a *Phase I ofCultural Resources Survey of Proposed 35 Acre Tract of Land.* Submitted to the Mississippi Department of Archives and History, Jackson.

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2008c *Phase I Cultural Resource Survey of Proposed Pass Christian Water System Improvements (Project S13) Harrison County, Mississippi.* Submitted to the Mississippi Department of Archives and History, Jackson.

Mann Jr, Cyril B.

1993 *A Cultural Resource Survey of a Proposed Condominium Development Site in Harrison County, Mississippi, Performed at the Request of Mr. Larry Lewis for Brown and Mitchell, Inc.* Submitted to the Mississippi Department of Archives and History, Jackson.

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1994b *A Cultural Resource Survey of a Proposed 8.8 Acre Site to be Located in Long Beach, Harrison County, Mississippi, Performed at the Request of James P. Carney of Heritage Properties Incorparated.* Submitted to the Mississippi Department of Archives and History, Jackson.

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Stowe, Noel R. and Rebecca Stowe

2001a *Cultural Resources Survey of Proposed 12 Acre Development in Long Beach.* Submitted to the Mississippi Department of Archives and History, Jackson.

2001b *Cultural Resources Survey of Proposed 12-Acre Development in Long Beach, Harrison County, Mississippi.* Submitted to the Mississippi Department of Archives and History, Jackson.

MISSISSIPPI DEPARTMENT of ARCHIVES AND HISTORY

MDAH

HISTORIC PRESERVATION
Ken P'Pool, director • Jim Woodrick, acting director
PO Box 571, Jackson, MS 39205-0571
601-576-6940 • Fax 601-576-6955
mdah.state.ms.us

March 10, 2009

Mr. Brett Mallette
Long Beach Water Management District
P.O. Drawer W
Gulfport, Mississippi 39502

RE: Phase I Cultural Resource Survey for Canal No. 1 Channel Modifications, Long Beach Water Management District, MDAH Project Log #02-121-09, Harrison County

Dear Mr. Mallette:

We have reviewed the December 2008 cultural resources survey report by Dr. Jill-Karen Yakubik, Principal Investigator, received on February 18, 2009, for the above referenced undertaking, pursuant to our responsibilities under Section 106 of the National Historic Preservation Act and 36 CFR Part 800. After review, we concur that no archaeological resources listed in or eligible for listing in the National Register of Historic Places are likely to be affected. Also, while it is our determination that the Courtenay Cemetery is potentially eligible for listing in the NRHP under Criterion A (for its vernacular markers), we concur that the project will have no effect on this resource. Therefore, we have no objection with the proposed undertaking.

There remains the possibility that unrecorded cultural resources may be encountered during the project. Should this occur, we would appreciate your contacting this office immediately in order that we may offer appropriate comments under 36 CFR 800.13.

Please provide a copy of this letter to Ms. Yakubik. If you need further information, please let us know.

Sincerely,

Jim Woodrick
Review and Compliance Officer

FOR: H.T. Holmes
State Historic Preservation Officer

c: Clearinghouse for Federal Programs